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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/654,618

**Applicant(s)**

KIM ET AL.

**Examiner**

STEPHEN G. SHERMAN

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-2, 3-7, 9-17, 20-31, 34-44, 46-53 and 55-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 3-7, 9-17, 20-31, 34-44, 46-53 and 55-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to the amendment filed 10 January 2010.

Claims 1-2, 3-7, 9-17, 20-31, 34-44, 46-53 and 55-58 are pending.

### ***Response to Arguments***

2. Applicant's arguments filed with respect to claims 1-2, 3-7, 9-17, 20-31, 34-44, 46-53 and 55-58 have been fully considered but they are not persuasive.

On pages 12-18 of the response the applicant argues that the references fail to teach "wherein the signal checking unit senses whether an input signal cable is connected to the display device and checks whether the identified input signal is abnormal by decoding the identified input signal when the input signal cable is connected to the display device", however, this claim language is not supported by the specification as explained in the 112, first paragraph rejection below. Thus, since the specification only states that either an input cable is detected or the input signal is decoded, for the purposes of examination the examiner is reading the claims as supported by the specification, where only one of the two needs to take place, where the examiner chooses the detecting of the input signal cable, which is taught by the combination of references as explained in the rejection below.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-2, 3-7, 9-17, 20-31, 34-44, 46-53 and 55-58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims recite "wherein the signal checking unit senses whether an input signal cable is connected to the display device and checks whether the identified input signal is abnormal by decoding the identified input signal when the input signal cable is connected to the display device", however, the specification clearly recites in paragraph [0012] that "a signal checking unit 115 can check whether the signals are abnormal by decoding the signals or by checking whether signal cables are connected to the display device 100." Thus the limitation as recited in the claims is not supported by the specification.

For the purposes of examination the examiner is reading the claims as supported by the specification, where only one of the two needs to take place.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-2, 3-7, 9-17, 22-31, 36-44, 46-53 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. (US 5,276,436) in view of Sakuda et al. (US 5,886,545) and further in view of Welmer (US 5,491,805).

***Regarding claim 1***, Shaw et al. disclose a display device (Figure 3) comprising:  
a signal identifying unit that receives an input signal and identifies the type of the input signal (Figure 3 shows signal converter 32 and analog multiplex unit 34, which receive an input signal.);

a signal checking unit checking whether the identified input signal is abnormal (Figures 3 and 6 show interface unit 13 which as a whole is a "signal checking unit" and column 9, lines 48-53 explain that the microprocessor 36 of interface unit 13 checks the received input signal from the multiplex unit 34 to determine if there is a horizontal synchronizing signal present or not, where no synchronizing signal means that the input signal is "abnormal".); and

a signal changing unit that switches from the checked input signal to a next input signal to be checked so that the signal checking unit checks whether the next input signal is abnormal, if the identified input signal is determined to be abnormal (Figure 3 and 6 and column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present, i.e. if it is abnormal, and then the next input signal will be checked for the synchronizing signals to see whether that signal is "abnormal".),

wherein the signal checking unit checks whether the identified input signal is abnormal (Figure 3 shows that the signal converter 32 decodes the synchronizing signals from the inputted video signals and column 9, lines 53-64 explain that the microprocessor uses the synchronizing signal to determine if the signal is abnormal.).

Shaw et al. fail to teach of a data setting unit that sets data corresponding to a user input regarding the received input signal, the set data representing how to check the identified input signal, and that the signal changing unit switches based on the set data.

Sakuda et al. disclose a display device comprising

a data setting unit that sets data corresponding to a user input regarding a received input signal, the set data representing how to check the identified input signal (Figure 1, where column 3, lines 16-20 and 35 to column 4, line 11 explain that there is a switch 9, i.e. a data setting unit, that sets the priority level of the port, i.e. data, and this priority data represents which order to check the ports, i.e. it represents how to check the signals.), and

a signal changing unit that switches from one signal to a next based on the set data (Figure 1 and column 3, line 35 to column 4, line 3 explain that the ports are switched to check signals based upon the priority data set by the user.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teaching of Sakuda et al. to allow a user to set priority to the ports taught by Shaw et al. in order to allow the user control over the checking of the ports.

Shaw et al. and Sakuda et al. fail to teach wherein the signal checking unit senses whether an input signal cable is connected to the display device.

Welmer discloses of a device in which a unit senses whether an input signal cable is connected or not (Column 6, line 54 to column 7, line 10).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of sensing for input signal cables such that the signal would be switched when a cable is not plugged in, i.e. abnormality is detected, as taught by Welmer in the display device taught by the combination of

Shaw et al. and Sakuda et al. in order to avoid unnecessary cost and complexity of the apparatus (Welmer, column 1, line 65 to column 2, line 1).

***Regarding claim 2***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 1.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is one of a D-sub analog signal, a DVI analog signal, a DVI digital signal, and a VIDEO signal (Figure 1 shows a D-sub signal.).

***Regarding claim 4***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 1.

Sakuda et al. discloses a data setting unit that sets one of a number of times the identified input signal is checked, a time required to check the identified input signal, and a position of the identified input signal to be checked within a sequence of identified input signals to be checked (As explained above, the user can set a priority to the ports and thus determines a position of the ports, i.e. signals, to be checked within a sequence of the ports.),

wherein if the signal checking unit has not checked one of the number of set times whether the identified input signal is abnormal and has not checked for the period of set time whether the identified input signal is abnormal, the signal checking unit continues checking whether the identified input signal is abnormal (Since the option is given above and the examiner chose the "position" option, then Sakuda does not need



to teach this limitations because the “number of times” and the “time required to check” limitations do not exist in the claim after the “position” option is chosen.).

***Regarding claim 5***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 4.

Sakuda et al. also disclose the display device further comprising a signal controlling unit that checks the position of the checked input signal within the sequence of identified input signals to be checked to determine which identified input signal is to be checked after the checked input signal, wherein the signal changing unit switches from the checked input signal to the determined input signal so that the signal checking unit checks whether the determined input signal is abnormal (As explained above, the position is checked based upon the user priority setting, and thus one port is checked first and then if the signal is abnormal then the next port is checked.).

***Regarding claim 6***, this claim is rejected under the same rationale as claim 1.

***Regarding claim 7***, this claim is rejected under the same rationale as claim 2.

***Regarding claim 9***, this claim is rejected under the same rationale as claim 4.

***Regarding claim 10***, this claim is rejected under the same rationale as claim 5.

**Regarding claim 11**, please refer to the rejection of claim 1, and furthermore

Shaw et al. also disclose

wherein if the checked input signal is normal, the signal continues being displayed by the display device and if the checked input signal is abnormal, the signal stops being displayed by the display device (Column 9, lines 43-64 explain that if the signal is "abnormal", then the next input signal is checked, which means that the signal will be stopped from being displayed by the display device. Column 6, lines 21-51 and column 9, line 65 through column 10, line 19 state that when a signal is determined to be "normal" then the signal is passed and displayed on the display device.).

**Regarding claim 12**, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Shaw et al. also disclose wherein the identified input signal and the next input signal are abnormal if cables carrying the signals are not connected to the display device (Column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present. If there is no cable connected, there will be no synchronizing signal and thus the checking unit will sense there is not a cable connected.).

**Regarding claim 13**, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Sakuda et al. also disclose wherein the identified input signal and the next input signal are abnormal if H-sync and V-sync patterns associated with the signals are abnormal (Column 3, line 50 to column 4, line 3.).

***Regarding claim 14***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is a D-sub analog signal (Figure 1).

***Regarding claim 15***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to explicitly teach wherein the signal identifying unit identifies whether the received input signal is a DVI analog signal, however, DVI analog signals are well known in the art, therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made that one of the signals identified by Shaw et al. and Sugihara et al. could be a DVI analog signal.

***Regarding claim 16***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to explicitly teach wherein the signal identifying unit identifies whether the received input signal is a DVI digital signal, however, DVI digital signals are well known in the art, therefore it would have been obvious to "one of

ordinary skill" in the art at the time the invention was made that one of the signals identified by Shaw et al. and Sugihara et al. could be a DVI digital signal.

***Regarding claim 17***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 1.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is a VIDEO signal (Figure 1 shows signals from a BNC connector, which are video signals.).

***Regarding claim 22***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Sakuda et al. also disclose the display device further comprising a data setting unit that sets the position of the identified input signal to be checked within a sequence of identified input signals to be checked (As explained above, the user can set a priority to the ports and thus determines a position of the ports, i.e. signals, to be checked within a sequence of the ports.).

***Regarding claim 23***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 22.

Sakuda et al. also disclose the display device further comprising a signal controlling unit that checks the position of the checked input signal within the sequence of identified input signals to be checked to determine which identified input signal is to

be checked after the checked input signal, wherein the signal changing unit switches from the checked input signal to the determined input signal so that the signal checking unit can check whether the determined input signal is abnormal (As explained above, the position is checked based upon the user priority setting, and thus one port is checked first and then if the signal is abnormal then the next port is checked.).

***Regarding claim 24***, Shaw et al., Sakuda et al. et al. and Welmer disclose the display device of claim 11.

Sakuda et al. also disclose the display device further comprising a menu from which a user determines the identified input signal is to be checked and a checking order (Column 3, lines 15-20 explain that there can be an on-screen display, i.e. a menu, for the user to select the priority, i.e. order to checking the signals.).

***Regarding claim 25***, this claim is rejected under the same rationale as claim 11.

***Regarding claim 26***, this claim is rejected under the same rationale as claim 14.

***Regarding claim 27***, this claim is rejected under the same rationale as claim 15.

***Regarding claim 28***, this claim is rejected under the same rationale as claim 16.

***Regarding claim 29***, this claim is rejected under the same rationale as claim 17.

***Regarding claim 30***, this claim is rejected under the same rationale as claim 12.

***Regarding claim 31***, this claim is rejected under the same rationale as claim 13.

***Regarding claim 36***, this claim is rejected under the same rationale as claim 22.

***Regarding claim 37***, this claim is rejected under the same rationale as claim 23.

***Regarding claim 38***, this claim is rejected under the same rationale as claim 24.

***Regarding claim 39***, this claim is rejected under the same rationale as claim 25.

***Regarding claim 40***, please refer to the rejection of claim 1, and furthermore Sakuda et al. also disclose wherein at least one of the input ports has priority in an order of checking by the signal changing unit as compared to another input port, wherein at least one of the input ports can be set to have a priority in an order of checking by the signal checking unit as compared to another input port (Figure 1, where column 3, lines 16-20 and 35 to column 4, line 11 explain that a user sets the priority level of the ports, and this priority data represents which order to check the ports, and thus one port can be set by a user to have a priority in the order of checking over another port.).

**Regarding claim 41**, Shaw et al., Sakuda et al. et al. and Welmer disclose the displaying device of claim 40.

Sakuda et al. also disclose wherein the order of checking of the input port is selected among a plurality of checking orders (Since each port can be selected to have a priority then the order is one of a plurality.).

**Regarding claim 42**, Shaw et al., Sakuda et al. et al. and Welmer disclose the displaying device of claim 41.

Sakuda et al. also disclose wherein the checking order is set by the user (As explained above, the user controls the switch 9 or on-screen display menu to select the priority of the ports.).

**Regarding claim 43**, Shaw et al., Sakuda et al. et al. and Welmer disclose the displaying device of claim 42.

Sakuda et al. also disclose wherein a menu is provided on a screen of the displaying device to set the checking order (Column 3, lines 17-20).

**Regarding claim 44**, this claim is rejected under the same rationale as claim 17.

**Regarding claim 46**, Shaw et al., Sakuda et al. et al. and Welmer disclose the displaying device of claim 40.

Shaw et al. also disclose wherein the displaying device is capable of displaying a computer signal (Figure 3, element 21 is a computer, which are capable of display on the active matrix panel 16.).

**Regarding claims 47 and 48**, please refer to the rejection of claim 1, and furthermore Sakuda et al. also disclose an analog input port for receiving an analog signal and a digital input port for receiving a digital signal (Figure 1 shows that there is a Dsub port and a BNC port, where the Dsub port is for receiving an analog signal and the BNC connector is for receiving both analog and digital signals, meaning that it is for receiving digital signals.), and that the switching occurs between the analog and digital ports (Figure 1 and column 3, lines 16-20 and 35 to column 4, line 11.).

**Regarding claim 49**, this claim is rejected under the same rationale as claim 40.

**Regarding claim 50**, this claim is rejected under the same rationale as claim 14.

**Regarding claim 51**, this claim is rejected under the same rationale as claim 15.

**Regarding claim 52**, this claim is rejected under the same rationale as claim 16.

**Regarding claim 53**, this claim is rejected under the same rationale as claim 17.



**Regarding claim 55**, this claim is rejected under the same rationale as claim 13.

**Regarding claim 56**, this claim is rejected under the same rationale as claim 41.

**Regarding claim 57**, this claim is rejected under the same rationale as claim 42.

**Regarding claim 58**, this claim is rejected under the same rationale as claim 43.

8. Claims 20-21 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. (US 5,276,436) in view of Sakuda et al. (US 5,886,545) and further in view of Welmer (US 5,491,805) and Yamashita et al. (US 5,808,693).

**Regarding claim 20**, Shaw et al., Sakuda et al. and Welmer disclose the display device of claim 11.

Shaw et al., Sakuda et al. and Welmer fail to teach the display device further comprising a data setting unit that sets the number of times the identified input signal is checked, wherein if the signal checking unit has not checked the number of set times, the signal checking unit continues the checking.

Yamashita et al. disclose a display device comprising a data setting unit that sets the number of times an identified input signal is checked, wherein if a signal checking unit has not checked the number of set times, the signal checking unit continues the checking (As shown in Figure 2 the number of times the input signal is checked is 1, so

when it hasn't been checked it is checked and after it is checked once it moves on to the next input signal.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Yamashita et al. in the display device taught by the combination of Shaw et al., Sakuda et al. and Welmer in order to allow for enough time to check whether the input signal is the correct input signal or not.

***Regarding claim 21***, Shaw et al., Sakuda et al. and Welmer disclose the display device of claim 11.

Shaw et al., Sakuda et al. and Welmer fail to teach the display device further comprising a data setting unit that sets the time required to check the identified input signal, wherein if the signal checking unit has not checked the identified input signal for the set period of time, the signal checking unit continues checking whether the identified signal is abnormal.

Yamashita et al. discloses a display device comprising a data setting unit that sets the time required to check the identified input signal (Figure 2 shows that a timer is set for checking the identified input signal),

wherein if the signal checking unit has not checked the identified input signal for the set period of time, the signal checking unit continues checking whether the identified signal is abnormal (Column 6, lines 1-32 and Figures 2 and 3 shows that the process repeats for checking the input signal abnormality.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Yamashita et al. in the display device taught by the combination of Shaw et al., Sakuda et al. and Welmer in order to allow for enough time to check whether the input signal is the correct input signal or not.

***Regarding claim 34***, this claim is rejected under the same rationale as claim 20.

***Regarding claim 35***, this claim is rejected under the same rationale as claim 21.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 7:30 a.m. - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen G Sherman/  
Examiner, Art Unit 2629

26 January 2010